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SOME ETHIOPIAN LACEBUGS (HEMIPTERA: TINGIDAE)

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The present paper deals with a small lot of miscellaneous Tingidae collected in Ethiopia during the years 1963-64 by the junior author. This collection comprises 15 species segregated into 12 genera, including 1 new genus and species and 4 undescribed species in other genera. Each species, as it was picked from the leaves of its host plant, was placed in a separate vial containing 80 percent alcohol. An effort was also made to pick nymphs as well as adults from the same leaves. Thus each vial contains numerous nymphal and imaginal morphs of one species. The last two immature stages provide good diagnostic characters.

One of the field notes is of unusual biological interest. On the road to Addis Ababa from Dire Dawa, August 30, 1963, numerous specimens of a new species, *Haedus cirratus* (fig. 2) were collected on a single host plant of *Grewia mollis*. To obtain more specimens of this undescribed species, another trip was made, February 19, 1964, to the same individual plant. On the latter trip, besides a long series of *H. cirratus*, several specimens of a new genus and species, *Afrotingis eumenes* (fig. 3), were taken on this particular plant. The illustrations depict the marked differences in structure and habitus of species found breeding on a single individual plant.

The host plants were identified by Dr. William Berger, plant taxonomist, Haile Sellassie I University; all plant names are listed in accordance with "A glossary of Ethiopian plant names" (Dublin Univ. Press, Ltd., 1963). The fine drawings of the lacebugs were executed by Mrs. Richard C. Froeschner, Arlington, Virginia. In the descriptions, 80 microunits are equivalent to 1 millimeter. The holotypes and allotypes of the new species are in the Drake Collection (USNM) and paratypes are in the Haile Sellassie I University and collections of the authors. For generic and specific references, see the Catalog of the Lacebugs of the World (Drake and Ruhoff 1964).

1. Smithsonian Institution, Washington, D. C.
2. Haile Sellassie I University, Dire Dawa, Ethiopia.

The collection comprises the species listed below, including records of breeding hosts:

Plerochila australis (Distant) (fig. 1)

Alemaya, Aug. 8, and Sept. 3, 1963 and Feb. 19, 1964, nymphs and adults, on olive tree, *Olea africana*. This species is a pest of cultivated olive, *Olea europaea*, and is widely distributed in Africa and islands in the Indian Ocean.

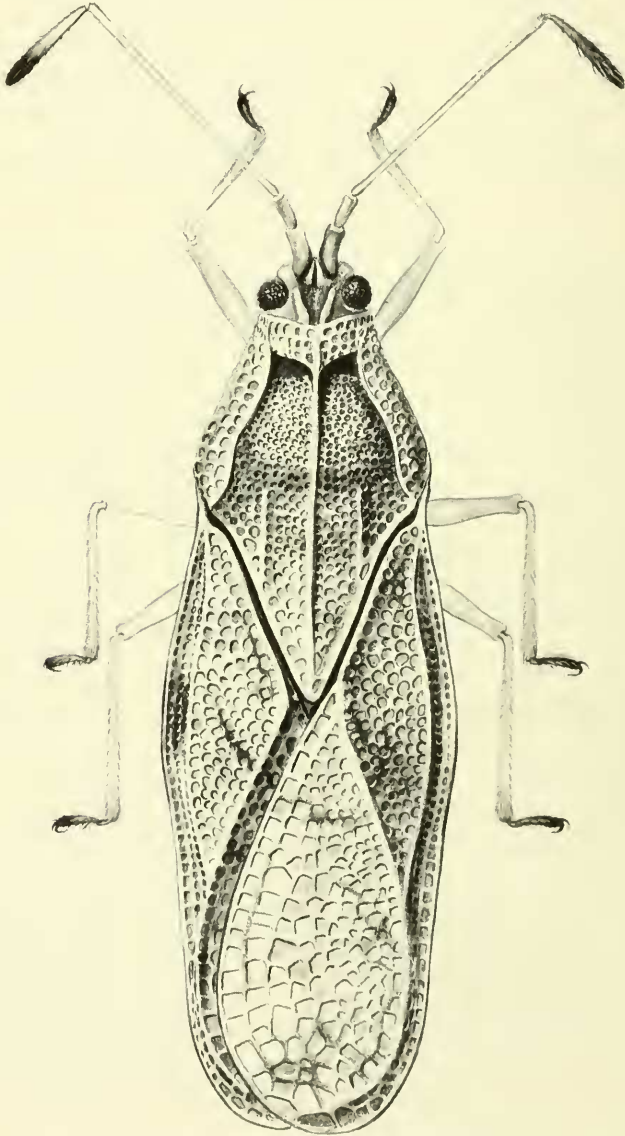


Fig. 1. *Plerochila australis* (Distant)

Compseuta latipennis Horváth

Collected 45 kilometers southeast of Harar on the road to Jigiga, May 25, 1963, alt. 1550 m., breeding on *Cordia ovalis*.

Compseuta ornatella teres Drake

Jimma, July 25, 1963, on *Premna* sp. The varieties of *ornatella* (Stal) show differences in the dimensions of the lateral carinae.

Elasmotropis testacea (Herrich-Schaeffer)

Alemaya, Dec. 17, 1963, on *Echinops spinosus* L. Several varieties of this species have been described.

Horvathula uniseriata (Horváth)

Alemaya, Aug. 26, 1963, on *Cordia africana* Lam. The members of the plant genus *Cordia* serve as breeding hosts for species belonging to several genera of lacebugs in both the Old and New Worlds.

Urentius hystricellus (Richter)

Alemaya, March 31, 1963; Dire Dawa, Aug. 13, 1961, breeding on *Solanum incanum* and *Solanum melongena* (eggplant, a common host). *U. aegyptiacus* Bergevin of Egypt is a synonym of it. This very spiny lacebug is also recorded from Kenya, Senegal, Nigeria, Sudan, Uganda, Egypt, Southern Rhodesia, Ceylon, and India.

Urentius euonymus Distant

Dire Dawa, Aug. 29, 1963, on *Hibiscus aponeurus* S. & H. Known also from Algeria, Egypt, Sudan, Ceylon, India, Israel, Syria, and Turkey. Several synonyms are recorded in the literature.

Eteoneus congolensis Schouteden

Alemaya, Aug. 26, 1963, on *Nuxia congesta* R. Br.

Cysteochila tombeuri Schouteden

Alemaya, Sept. 3, 1963, on *Cissus* sp.

Naochila kivuensis (Schouteden)

South face of Gara Mullata Mts., 50 km. west of Harar. alt. 1100 meters; on *Acanthus eminens* C. B. Clarke.

Naochila engys, n. sp.

Small, oblong, testaceous with head, pronotum, paranotum, and the tumid elevation of each elytron plus many veinlets blackish fuscous. Body beneath brown to blackish fuscous. Antennae testaceous. Legs testaceous with a fairly wide fuscous band near the middle of each hind femur, all tarsi dark fuscous. Length ♂ and ♀ 1.90 mm.; width (elytra) 0.85 mm.

Head very short, armed with five testaceous spines; frontal spines moderately long, porrect; hind pair much longer, stouter, appressed, extending forward almost to fore margins of eyes; buc-

culae wide, closed in front, finely areolate. Rostrum testaceous with dark tip, extending slightly beyond sternum; sternal laminae low, areolate, usually deep black. Ostiole and ostiolar canal not visible. Antenna long, very slender, indistinctly pubescent, fourth segment sparsely hairy and slightly swollen. Measurements: segment I, 6; II, 5; III, 42; IV, 14.

Pronotum moderately convex, coarsely punctate, tricarinate; median carina long, elevated anteriorly on pronotal disc, uniseriate, the areolae fairly large; lateral carinae long, less raised than median, concealed on each side of pronotal disc by reflexed paranotum, slightly divergent posteriorly; paranotum large, reflexed, inflated, space between outer margin of each paranotum and median carina about the width of an areola; each paranotum with two prominent, longitudinal ridges, the outer ridge less prominent and near humeral angle, each ridge formed by longitudinally elevated areolae. Legs long, slender, inconspicuously pubescent. Ostiole and ostiolar canal not visible.

Elytra slightly wider and longer than abdomen; sutural areas overlapping each other with apices resting jointly rounded in repose; hypocostal lamina narrow, uniseriate; costal area composed of one row of moderately large, hyaline areolae, the crossveins thick and blackish fuscous; subcostal area two areolae deep in front of outward projection of discoidal area and then three or four cells deep behind it; discoidal area approximately reaching middle of elytron, tapering anteriorly, almost triangular in outline, elevated, and widely truncate at apex, almost four or five areolae deep, convexly projecting outward in apical third into subcostal area; sutural area large. Hind pair of wings slightly longer than abdomen, smoky, functional.

HOLOTYPE ♂ and ALLOTYPE ♀, both macropterous, on *Cordia ovalis*, about 42 km. west of Dire Dawa, on road to Addis Ababa, altitude 1,100 m., Dec. 22, 1963. PARATYPES: 10 specimens, collected with type; 10 specimens, Alemaya, Ethiopia, on *Ehretia cymosa*, April 6, 1964, Bob G. Hill; 12 specimens, North Transvaal, South Africa, on *Ehretia rigida*, Dec. 16, 1964, J. Paliatseas.

Separated from *N. kivuensis* Schouteden by its much smaller size, narrower form, and longitudinally ridged paranota; femora may or may not be banded with blackish fuscous, sometimes only one or two pairs banded. In *N. kivuensis*, the paranota are inflated but not ridged and the outer margins meet on the median line of pronotal disc above the median carina.

Dictyla litotes, n. sp.

Small, oblong, slightly brownish testaceous with pronotal disc, narrow, basal margin of each paranotum plus adjacent part of propleuron, all coxae, and fourth segments of each antenna blackish fuscous. Cephalic spines testaceous. Length 2.52 mm., width (elytra) 0.93 mm.

Head very short, not much produced in front of eyes, armed with five testaceous spines, the three frontal spines porrect and hind pair appressed; rostrum extending to end of mesosternum; sternal laminae of rostral sulcus testaceous, uniseriate, slightly divergent posteriorly on mesosternum, widely separated and cordate on metasternum, closed behind; bucculae areolate, ends meeting in front. Metapleural orifice and ostiolar canal not visible. Antennae rather short, slender, segment III sparsely beset with short, setal hairs, measurements: segment I, 6; II, 5; III, 42; IV, 14.

Pronotum moderately convex, punctate, completely covered on each side of pronotal disc by reflexed paranotum; lateral carinae visible only on backward, triangular projection of hind margin of pronotum; all carinae low, non-areolate, the lateral pair divergent posteriorly behind pronotal disc; paranota large, completely reflexed, flat, resting spread out on pronotal disc, each with its outer margin coming in contact with median carina; hood very small, composed of four or five areolae on each side. Legs rather short; femora little swollen, indistinctly pubescent.

Elytra not much wider or longer than abdomen, with apices jointly rounded in repose; costal area narrow, uniseriate; subcostal area mostly biseriate, the areolae subequal in size to those in costal area; discoidal area tapering anteriorly, extending backwards scarcely beyond middle of elytra, widest slightly in front of apex, there widely acutely angulate; sutural area large, on same horizontal level as discoidal area. Boundry veins of discoidal area and vein separating costal and subcostal areas brownish or fuscous. Hind wings clear, functional.

HOLOTYPE ♂ and ALLOTYPE ♀, both macropterous, Dire Dawa, Ethiopia, Nov. 13, 1963, Edson J. Hambleton. PARATYPES: 2 specimens, collected with type.

This species is similar in size, form, and outward appearance to *D. abyssinica* (Drake) but readily separated from the latter by having shorter third antennal segment (18:27), shorter rostrum (15:11), and smaller areolae in elytra. The median carina of pronotum is uncovered for its entire length and both propleura are entirely black. We are indebted to Mr. R. J. Izzard for the comparison with the holotype of *D. abyssinica* in the British Museum.

Dictyla poecilla, n. sp.

Moderately large, grayish testaceous with some scattered spots on veinlets of paranota and elytra brownish to dark fuscous; head black with spines testaceous; bucculae testaceous, areolate, anterior ends meeting in front of labium. Antennae testaceous, pubescence sparse and inconspicuous. Legs testaceous with basal half of femora slightly embrowned. Rostrum brown, extending scarcely beyond mesosternum; sulcal laminae wide, testaceous, diverging backwards on mesosternum, widely separated and cordate on metasternum, closed behind. Pronotal disc reddish brown, covered by reflexed paranotum

on each side. Length 3.52 mm.; width (widest part of elytra) 1.30 mm.

Head very short, dorsal spines stout, basal pair appressed, other three porrect. Antenna slender, inconspicuously pubescent, measurements: segment I, 9; II, 7; III, 50; IV, 20. Antennal tubercles large, flat, plate-like, areolate. Ostiole and ostiolar canal not visible on either metapleuron.

Pronotum moderately convex, coarsely punctate, tricarinate; median carina percurrent, indistinctly areolate on pronotal disc; lateral carinae visible behind pronotal disc, covered on each side of median carina by the large, completely reflexed, flat, paranotum; lateral carinae visible and divergent on triangular process, concealed under outer vein of each paranotum, extending forward beyond middle of pronotal disc, there slightly convergent but not coming in contact with median carina; both sides of median carina and inner side of each lateral carina thickly-set with straight, pale, outwardly pointed, setal-like, bristly hairs. Legs moderately long, femora slightly swollen.

Elytra slowly roundly narrowed behind middle to apex, slightly overlapping each other within, apices jointly rounded; hypocoastal lamina uniseriate; costal area narrow, mostly uniseriate, biseriate (5 or 6 areolae) opposite apex of discoidal area, areolae separated from one another by thick, dark, transverse veinlets; subcostal area wider, mostly three areolae deep; discoidal area large, wide at apex, anterior half narrow and tapering to a point at base, posterior part much wider, with outer boundary vein extending concavely into subcostal area, widest at base, there obtusely angulate; sutural area large, flat. Hind wings clear, functional.

HOLOTYPE ♂ and ALLOTYPE ♀, both macropterous, Dire Dawa, Ethiopia, on *Cordia rothii*. PARATYPES: 18 specimens, taken at the same time as type.

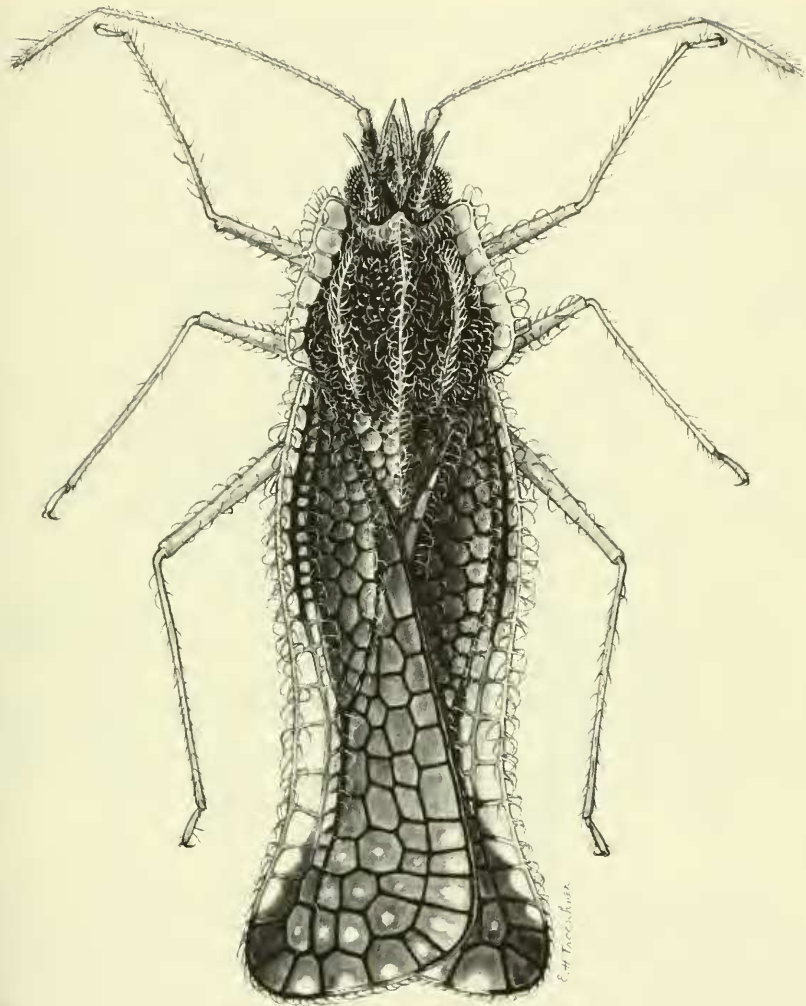
Separated from *D. abyssinica* (Drake) and *D. litotes*, n. sp., by its wider, elyptical form, partly biseriate costal area opposite apex of discoidal area, and apical two-fifths of outer boundary vein of latter area extending deeply concavely into subcostal area.

Haedus cirratus, n. sp.

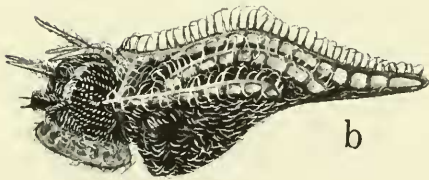
Figure 2

Small, slender, blackish fuscous with paranota, costal areas of elytra, cephalic spines, bucculae, and hairy vestiture of dorsal surface whitish testaceous. Appendages testaceous. Body beneath blackish fuscous with pale vestiture. Length 2.30 mm., width (elytra) 0.65 mm.

Head very short, armed with five long dorsal spines, the median spine erect, others porrect; bucculae closed in front, areolate. Rostrum pale, extending to base of mesosternum in repose; sternal laminae of rostral sulcus brownish testaceous, uniseriate, closed be-



a



b

Fig. 2. *Haedus cirratus*, n.sp.

hind. Antenna long, slender, moderately clothed with pale, setal hairs, those on third segment recumbent, measurements: segment I, 8; II, 6; III, 50; IV, 22. Hairs on head, cephalic spines, paranota, and elytra fine, fairly abundant; those on outer margins of paranota and elytra longer, numerous, and closely-set with apices curled.

Pronotum moderately convex, punctate, clothed with numerous, reclining hairs, tricarinate; all carinae raised, lateral pair parallel, each composed of one row of quadrate areolae; paranota uniseriate, each composed of a single row of quadrate areolae larger than those in carinae; collar small, feebly raised at middle. Ostiole and ostiolar sulcus not visible on either metapleuron. Legs long, slender, sparsely clothed with pale setose hairs, those on tibiae slightly longer and pointed outward.

Elytra not much wider than abdomen, extending backwards beyond apex of abdomen, distinctly hollowed on outer margins, widest near apices, without discoidal turgescences; costal area composed of one row of clear, moderately large, quadrate areolae; subcostal area narrower than costal area, nearly vertical, also composed of one row of quadrate areolae; discoidal area elongate, extending backwards slightly beyond middle of elytron, narrowed at each end; sutural areas large, slightly overlapping each other in repose.

HOLOTYPE ♂ and ALLOTYPE ♀, both macropterous, on *Grewia mollis* A. Juss., Aug. 31, 1963. 60 km. west of Dire Dawa, on road to Addis Ababa, at. ca. 1100 m. PARATYPES: 50 specimens, taken on same plant with type. The holotype is illustrated.

The smaller size, downward curved tips of hairy clothing, and widely expanded apices of elytra separate this species from other members of the genus in Africa possessing uniseriate costal and subcostal areas and paranota.

Afrotingis, n. gen.

Small, distinctly lacy, paranota and elytra expanded outward, much wider and longer than body, side margins of paranota and elytra beset with sharp spines. Head very short, feebly produced in front of eyes; bucculae areolate, closed in front. Antennae short, slender, segments I and II very short, slightly swollen; III longest, very slender; IV slightly thickened, approximately half as long as III. Rostrum short, scarcely extending backward beyond prosternum; sternal sulcus of rostrum with laminae uniseriate.

Pronotum strongly convex, punctate, unicarinate, lateral carinae absent, hind margin triangularly produced backwards, areolate. Legs rather short, femora slightly swollen. Ostiole and ostiolar canal obsolete. Elytra without tumid elevations, divided into the usual areas, the discoidal area extending posteriorly beyond middle of elytron; hypocostal laminae uniseriate. Hind wings present, functional.

Type species: *Afrotingis eumenes*, n. sp.

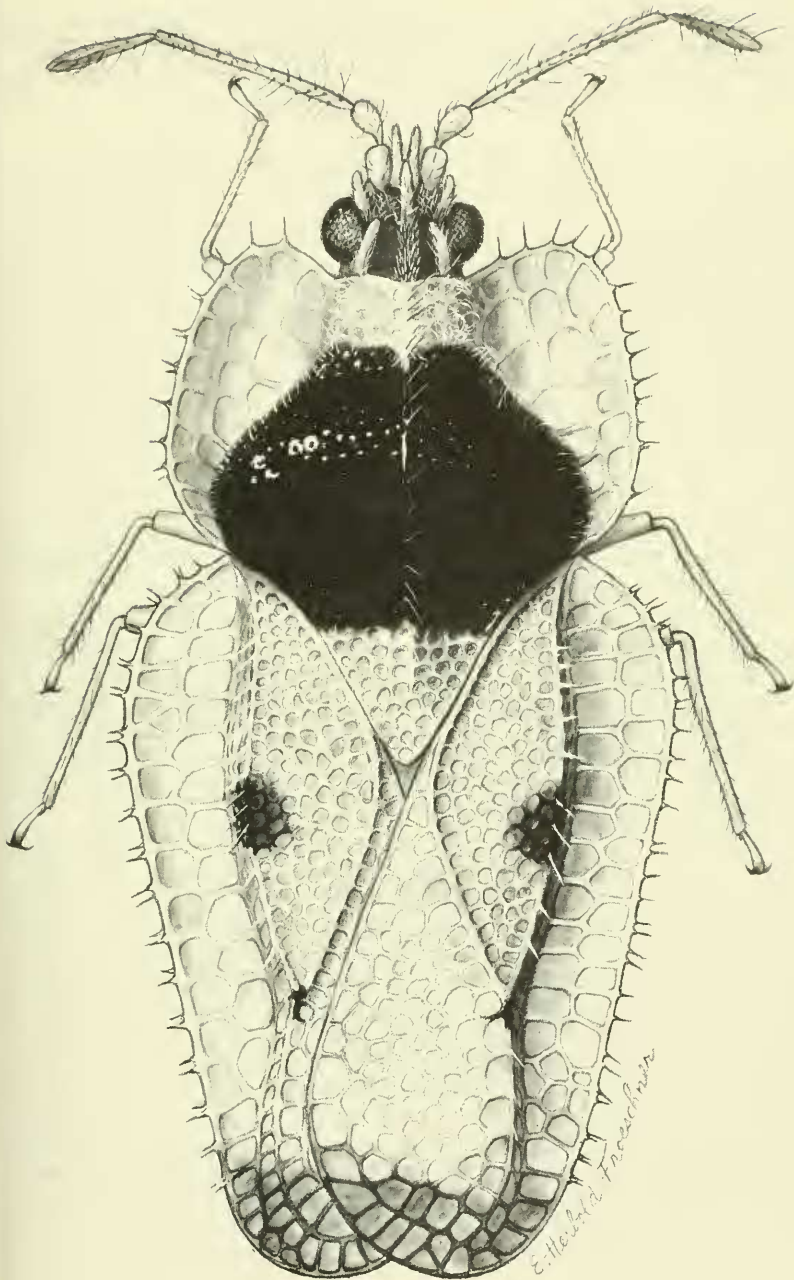


Fig. 3. *Afrotingis eumenes*, n.sp.

The unicarinate pronotum, long discoidal area, and widely expanded paranota and elytra distinguish this genus from other African genera. It belongs to the subfamily Tinginae, tribe Tingini, and is the smallest of the wide, finely lacy tingids in Africa.

Afrotingis eumenes, n. sp.

Figure 3

Small, oblong, clearly lacy, shining. Whitish testaceous with head, pronotal disc, and two large and two small spots on each elytron deep black; apical part of elytra brownish; areolae mostly hyaline. Antennae pale testaceous with terminal segment fuscous. Legs pale testaceous, with all tarsi dark. Body beneath black, shining. Length 1.82 mm., width 0.80 mm.

Head very short, hairy, armed above with five testaceous spines, each spine and median longitudinal part of head clothed with curly hair; bucculae testaceous, ends meeting in front, areolate. Antenna clothed with fairly long, stiff, setal hairs; measurements: segment I, 8; II, 6; III, 24; IV, 14. Rostrum short, brownish, terminating on forepart of mesosternum; rostral laminae uniseriate, present on all three sternal division, widely separated from each other, sometimes mostly black, then rather difficult to see.

Pronotum much swollen, finely punctate, unicarinate; median carina low, with a few upright, whitish spines; lateral carinae lacking; collar distinctly areolate, with two or three transverse rows of areolae, with a few slender upright spines at middle, there feebly narrowly extended backwards; paranotum wide, triseriate in front, biseriate opposite humeral angles, outside margins armed with long slender spines; hind process of pronotum triangular, areolate. Legs short, femora slightly swollen, each with scattered setal hairs.

Elytra divided into the usual areas, without tumid elevations, slightly whitish, transparent, armed along outer margins with long, slender spines, each situated on a thickened base; boundary veins of discoidal area armed with slender, upended spines with thick bases; costal area wide, composed of two full rows of fairly large areolae; subcostal area mostly biseriate, sloping downward; discoidal area large, about three-fourths as long as elytron, widest near middle, there six or seven areolae deep, outer boundary vein convex within, base and apex narrowed, each acutely angulate; sutural area large, on same level as discoidal area. Hind wings present.

HOLOTYPE ♂ and ALLOTYPE ♀, both macropterous, on *Grewia mollis*, A. Juss., 60 km. west of Dire Dawa, along road to Addis Ababa, elev. 1100 m., Aug. 30, 1963. PARATYPES: 4 specimens, taken on the same tree with types. The holotype is illustrated.